Delivering public engagement

EPCC delivers a diverse programme of engagement activities to the general public, covering computational science, supercomputing and data science.

Why we do it

We aim to enthuse our young people in STEM and to demonstrate the value of supercomputing and data science to society.

EPCC operates a wide range of data facilities and high performance computing platforms. We look to explain the purpose of these facilities and show that this is a valuable use of public funds. We aim to enthuse our young people in STEM (science, technology, engineering and mathematics) and showcase the potential rewards a career in computational science can bring.

Spanning the UK

As a National Service provider, we focus on activities that provide benefit across the UK. We regularly attend large science festivals covering different areas within the UK: recent events include London and the South East, the Midlands and north of England, and Scotland. These events allow us to engage with attendees from across all age groups and backgrounds.

For example, we regularly have a stand at the Big Bang Fair in Birmingham which, with over 20,000 children visiting, is the "UK's largest celebration of STEM for schools". We also regularly have a booth at New Scientist Live in London, the "world's greatest festival of ideas and discovery", and at the Edinburgh Science Festival, a celebration of the wonders of science, technology, engineering and mathematics.

Students learning about supercomputing at the EPCC stand at the Big Bang Fair, Birmingham, UK.

Work experience

We offer work placements for school children, providing opportunities for them to experience the world of work and explore careers in computational science. These placements are actively focused on young people who are traditionally under-represented in higher education.

In particular we are part of the Career Ready scheme, providing mentoring and paid internships for upper secondary students from disadvantaged backgrounds. During a four-week summer placement each student works with EPCC staff on a project and gains real-life work experience. We are also involved in the STEM Learning Research Placements and Experiences Programme, offering placements of two to three weeks where students work on individual research projects.

Highlighting the research enabled by supercomputers

Wee Archie is our suitcase-sized supercomputer. Through it, participants can use a parallel computer, learn about the type of science running on our supercomputers and understand more about performance and power.

The demos we run on Wee Archie are designed to introduce the sort of important science being carried out on real supercomputers, helping to explain the value of these systems to society. For example, a recent demo allows participants to design their own wind-turbine blade, which helps to explain the air flow around these blades and how this impacts the power generated from a turbine.

Introducing programming

Our **logic puzzles** encourage participants to apply their problem-solving abilities and introduce the skills required to develop algorithms. From escaping zombies, to transporting essentials between spaceships while minimising the carbon footprint, these activities are very popular.

The EPCC outreach team and students with our binary bracelets activity, where beads are used to spell out a name in binary.

Our popular ball-sorting activity.

Our **Micro:bit workshops** introduce programming to students in a fun and accessible way. Students learn about variables, loops and conditional statements, and communication, before trying their hand at their own virus simulation.

Parallel programming at work

We have lots of different practical hands-on activities designed to introduce the concepts of parallelism. For example, a fast and furious **parallel ball-sort activity** has been very popular. As has our **binary keyring activity** which helps to explain how binary numbers are used to store data on computers.

Online resources

We provide a wealth of online resources targeted at both school children and lifelong learners.

In addition to worksheets and games, our timeline of computing facilities at EPCC provides an insight into how supercomputers have developed over the years. See our website for details and downloads:

https://discover.epcc.ed.ac.uk